

REMARKS/ARGUMENTS

The Office Action dated October 4, 2007 and the references cited therein have been carefully considered. In response to the Office Action, Applicant has amended Claims 1 and 15 and added new Claim 39 which, when considered with the remarks set forth below, are deemed to place the case with Claims 1-30 and 32-39 in condition for allowance.

Telephone Interview

Applicant first thanks the Examiner for the telephone interview conducted with Applicant's attorney on December 13, 2007. During the course of the interview, the Examiner agreed that the amendment to Claims 1 and 15 and new Claim 39 appear to distinguish over the cited prior art. However, the Examiner stated that further consideration would be required and an additional search may be necessary.

Allowable Subject Matter

In the Office Action, Claims 19-22 and 36-37 have been deemed allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

The remaining claims, however, have been rejected based on prior art. Specifically, Claims 1-2, 6-8, 11-15, 24, 27, 29-30, 33 and 35 have been rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 5,858,298 to Humal in view of newly cited U.S. Patent No. 5,979,308 to Kagi et al. The Examiner applies the Humal patent as before and notes that this patent does not teach a control sequence for actuation of the radiation-producing device which is extendable over more than one operating cycle of the replication apparatus. However, the Examiner cites the Kagi patent as teaching a control sequence for marking a substrate that is extendable over more than one operating cycle of the apparatus.

Claims 3-5, 9-10, 16-18, 23, 25-26, 28 and 34 have been rejected under 35 USC §103(a) as being unpatentable over the Humal patent in view of the Kagi patent, and further

in view of U.S. Patent No. 3,758,649 to Frattarola and Claims 32 and 38 have been rejected under 35 USC §103(a) as being unpatentable over the Humal patent in view of the Kagi patent, and further in view of U.S. Patent No. 6,227,109 to Inoue. The Examiner states that the newly cited Inoue patent discloses the additional limitations found in previously allowable Claim 32.

As discussed during the telephone interview, Applicant has amended independent Claims 1 and 15 to more clearly define the features of the present invention. In particular, Claims 1 and 15 respectively define an apparatus and a process for forming a marking on a substrate by directing laser radiation energy on a replication surface to produce regions of different temperatures which will form at least one shaping region defining the marking. The replication surface is structured with a surface relief, wherein the surface relief is in the form of a negative for the surface structuring of the marking. The surface relief of the replication surface is shaped onto the substrate, forming the surface structuring, by the replication apparatus contacting the substrate under pressure, wherein a change in the selection of the shaped region is effected by a change in the temperature distribution on the replication surface. It is respectfully submitted that none of the cited references, taken alone or combined, discloses these features.

Specifically, the Humal patent does not disclose a replication surface having a structured surface relief to shape diffractive, holographic or matt structurings or markings on a substrate. Instead, the Humal patent discloses a photographic process wherein a "means 32 containing a light-absorbing pattern" is pressed against a substrate 6 between a hollow glass cylinder 30 and a pressing roller 31. (See Fig. 8 and column 9, lines 1-52.) The hollow glass cylinder 30 contains a gas discharge lamp 33 which generates a series of light impulses of adequate power and duration to expose the surface of the substrate 6 through the light absorbing pattern means 32. The light absorbing means 32 acts simply like an optical mask, blocking some of the light and allowing other portions of the light to pass through to expose the surface of the substrate. Notably, there is no mention of providing the glass cylinder 30 or the light-absorbing means with structure in the form of a surface relief, as defined in amended Claims 1 and 15.

Similarly, the Kagi patent discloses a flat embossing machine with a foil loop store to transfer e.g. holograms from a foil to a flat material. The transport of the foil is performed

continuously while the flat material transport and the flat press operation is performed discontinuously. There is no disclosure of a radiation producing device and therefore no disclosure of a control sequence for actuation of such a radiation producing device, which control sequence is extendable over more than one operating cycle of the replication apparatus, as defined in amended Claims 1 and 15.

In stark contrast, the basic idea of the present invention is to use a stamp or cylinder comprising a fixed surface relief, wherein only certain regions of the stamp or cylinder surface are brought to a temperature to be able to transfer the relief in the form of markings onto a substrate. The marking transferred to the substrate changes in dependence of the temperature distribution of the surface of the stamp or cylinder. It is therefore possible to perform, e.g., a sequence of different markings on a continuously transported substrate, e.g. a string of characters, which is longer than the physical dimension of the stamp or the circumference of the cylinder. The feature of Claim 1, that a control sequence for actuation of the radiation producing device is extendable over more than one operating cycle of the replication apparatus is not found in the prior art.

Applicant has further added new Claim 49, which defines a method for forming a light scattering marking on a substrate including the steps of irradiating a region of a replication surface with laser energy, whereby the irradiated region has a temperature greater than a non-irradiated region of the replication surface, and pressing the replication surface on the substrate whereby a stamping structure of the replication surface thermally deforms the substrate to form the light scattering marking, wherein the marking has boundaries defined by the irradiated and non-irradiated regions of the replication surface. As discussed above, it is respectfully submitted that none of the references, taken alone or combined, discloses a replication surface having a stamping structure which thermally deforms a substrate when pressed against the substrate, wherein the marking has boundaries defined by irradiated and non-irradiated regions of the replication surface, as defined in new Claim 49.

Accordingly, it is respectfully submitted that amended Claims 1 and 15, and new Claim 49 patentably distinguish over the prior art. In view of the foregoing amendment and remarks, favorable consideration and allowance of the application with Claims 1-30 and 32-39 are respectfully solicited. If the Examiner believes that another telephone interview would

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assist in moving the application toward allowance, she is respectfully invited to contact the Applicant's attorney at the telephone number listed below.

Respectfully submitted,



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